HARD EDGES

Sin City - Stark shards of graphic CG black and white. CG sets surround the production of classic Miller gangster film-noir. CGN takes it down to forensic.

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CGNetworks Feature :: Sin City
Barbara Robertson, 2 May 2005

The movie's a kick in the balls, Dimension Film's Sin City is, all hard edges, black and white, touches of color, violent, 21st century comic book film-noir. Starring Mickey Rourke, Brice Willis, Clive Owen, Benicio Del Toro, Elijah Wood, Jessica Alba, Jaime King and many others, and directed by Robert Rodriguez with Miller as co-director, the film is as faithful to Miller's black and white graphic novels as Rodriguez, his crew at Troublemaker Digital, and the three visual effects studios who worked on it could make it.

Seventy-eight percent of the critics have given the relentless depiction of three Frank Miller graphic novels thumbs up, according to Rotten Tomatoes www.rottentomatoes.com. So have moviegoers who slammed it into the top ten for 2005 in the second week after opening, according to Box Office Mojo www.boxofficemojo.com.

Few critics label the film as a 'visual effects' film, but it was created nearly entirely with visual effects. The actors were filmed on greenscreen stages; the backgrounds were all digital, crafted in CG with matte paintings and 3D graphics. "There were 1925 visual effects shots in the film," says Keefe Boerner, production and visual effects producer. "We had a few sets that were digitally extended. Otherwise, it's

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completely computer generated. We created entire cities, neighborhoods, forests—everything in the background is CG or matte paintings. Even when the actors are leaning up against a wall, what they're leaning against is CG."

Boerner convinced Hybride Technology (Quebec), Café FX (Los Angeles), and The Orphanage (San Francisco) to take on the project. All three studios had worked with Rodriguez before and all three had worked on "Sky Captain and the World of Tomorrow". Hybride got "Sin City"—renamed "The Hard Goodbye", The Orphanage landed "That Yellow Bastard," and Café FX, "The Big Fat Kill."

The studios had two challenges: work fast and create art.

"I had to cajole them into taking on so much work in such a short time—we needed 600 shots in six months from each," Boerner says, "but they all loved the story and we gave them entire books. "That was my carrot—they did everything in a sequence."

Working Hard, Moving Fast
Hybride created more than 700 shots, some entirely 3D, some matte paintings. "We made banks of objects to use here and there," Daniel Leduc, visual effects supervisor at Hybride says. "We didn't build one big city and move the camera inside. We always built the scenes from the camera viewpoint and sometimes added 2D motion in compositing."

The crew used SoftimageXSI, Photoshop, and Discreet's Inferno, Flame, and Smoke.

"We used a lot of paintings projected onto CG models inside XSI," adds Phillippe Theroux, 3D Supervisor at Hybride, "because it's faster to work like this." Often, the crew had to change sets every 15 shots.

At Café FX, approximately 65 people worked on some 600 shots. "I think the most difficult parts were when the characters were traveling from one location to another," says David Debner, effects supervisor. "We had to dream up where the roads went, where they turned, all that stuff. Those shots were 100 percent digital, including the actors."

For efficiency, they split the crew in half with Jeff Goldman supervising one crew and Everett Burrell, the other.

"We went through a lot of reference films first," says Burrell. "'The Thin Man' and 'Eraserhead'. But our biggest influence was the graphic novel 'Sin City'. The mandate was to always match that—to match the angles as closely as we could."

The crew started in July and had rough shots ready for Rodriguez to cut together in November. Then, using Rodriguez' notes, they added texture to the scenes.

An inadvertent bit of efficiency was that the crew rendered the cars in color to match those in live action, to keep the tone the same. When Rodriguez decided late in the process that he wanted some of the cars in color, they could simply re-render them.

To help create nearly 600 shots at the Orphanage, painters worked in grayscale from the beginning. "In many respects, this was a simple show to do because a lot of the shots were locked off," says Roger Gibbon, digital matte painting supervisor. "So we could just focus on the lighting and mood. One of the biggest challenges was the sheer volume. We could recycle some shots, but most had to be generated from scratch."

Unlike 'Sky Captain', in this film when color was added, it was boldly applied to very specific objects—a car, red lips, blood, the Bastard's yellow skin, a flash of a taillight, a heart-shaped red bed.

"With 'Sky Captain', they were trying to represent reality," says Hybride's Leduc. "Even if something was not real, it looked photoreal. That's not the case in Sin City. It wasn't the point. Robert was always trying to break the realism."

Making Art

For this film, everyone used Miller's novels as storyboards for the choreography. The question became how to bring the stories to life without losing the graphic quality.

The look was first developed at Rodriguez's Troublemaker Digital. "We are kind of the hub," says Chris Olivia, a Troublemaker artist. "Robert is very specific about what he wants, so if we can work out the direction and look, we can give the vendors blueprints."

"Robert experimented with the camera on set", he adds. "Because he was shooting with HD, he could try black and white, taking out some colors, keeping others, and play around with makeup and lighting on set. He decided to shoot

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it straight and keep as much information in the camera as possible so that people would have enough to play with in post." Working in XSI, Troublemaker Digital put CG backgrounds behind Rodriguez's test shots, lit the scenes and, in mental ray, experimented with rendering various looks from stark black and white to grayscale. Eventually, they developed the mix of stylized black and white with selective use of color and textured details that Rodriguez approved and is now in the film.

All the vendors were given full color plates to work with—in fact, because the crew used Sony's new HDCAM SR 4:4:4 tape decks, the color was "fuller" than HD color had been before. "The output was in full resolution RGB with 10 bits per channel so it kept all the color definition", says Leduc, "It's a black and white movie with tons of shading."

All the studios developed methods for keeping detail in the shadows, yet retaining the stark black and white look. Background painters in every studio saw their careful work disappear and then reappear as light moved across the scenes.

The Orphanage worked entirely in grayscale. Café FX rendered some CG models in color—the cars that needed to match live action cars, for example and others in grayscale. Hybride artists began working in full color and then killed the color and composited in grayscale; later, as the work became more defined, the crew painted and rendered backgrounds in grayscale.

"It was a big compositing job, of course", says Hybride's Leduc, "with a lot of color correction. The picture from the tape [from the live action shoot] didn't represent reality for the compositor, so it was tough to find the direction at the beginning. It took a lot of trial and error to get the gray scale right for the skin tones and still crunch the black and high levels." Hybride ended up using curves rather than gain control, as did the other studios.

"The hardest thing was to art direct our world," says Café FX's Burrell. "The direction came from the graphic novel, but we had to decide what's 'back there.' It would have been easy to have a simple black or white background and be done, and we did that for key moments. But it would have been too hard on the eyes for the whole film. So, we had to build the entire world. It all had to move, and half the time it was raining."
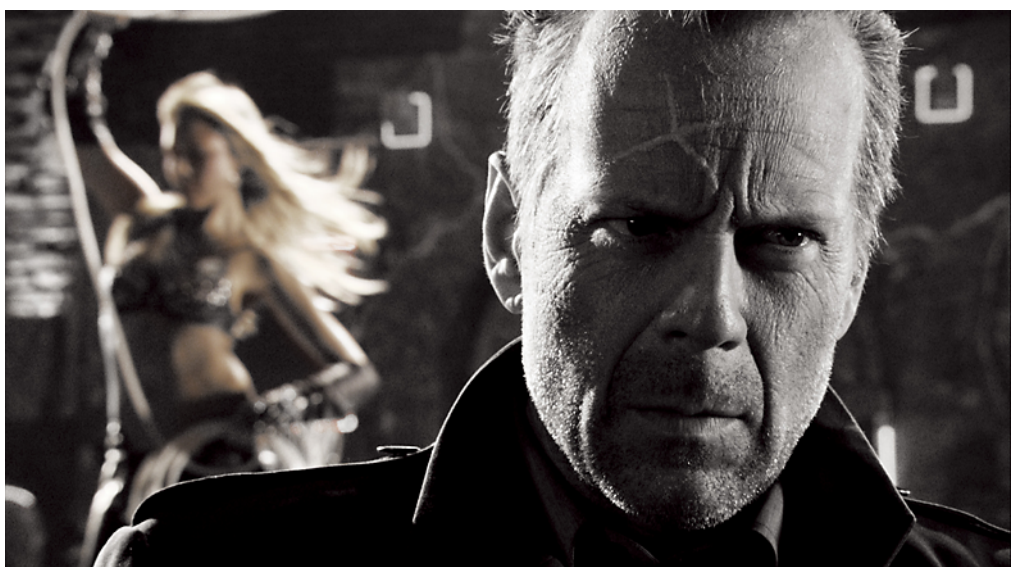
Among the sequences cooked up at Café FX were shots in the LaBrea Tar Pits in which everything in the background was CG, from the grass to the lightning in the sky to the dinosaur statues with rain dripping off them. The studio used LightWave, Maya, and Photoshop to create most of the effects, with Digital Fusion and a bit of Commotion for compositing and boujou for camera tracking.

It was snowing, however, in The Orphanage's shots. To put snow on the ground in a motel scene, the studio cleverly used baking soda dampened to create a crust, added tire tracks and footprints with toy cars and action figures, photographed that, projected the photo onto CG topography, and rendered the scene in Brazil. "We got a reflection of the snow in the CG truck's hubcaps", says Stu Maschwitz, visual effects supervisor.

In other shots, the snow is 3D, created in Houdini.

"We tried 2D snow, but Robert said we needed more depth of field," says Rodrigo Teixeira, CG supervisor. "The Orphanage is a big 3ds max house, but we ended up going down the Houdini and vMantra path for the snow because it was so efficient. In one car chase sequence between that Yellow Bastard and Bruce Willis, the camera was moving at 100mph and we had a lot of snow to motion blur in rendering. When snow's moving fast, especially sideways, at a certain point it looks like rain."

To generate snow around the cars, Teixeira created a box of points that moved with the car and camera, and then birthed particles that recycled themselves inside the box. "It made it very efficient," he says.

Despite the film's graphic look, the effects crews grounded the art in reality. Maschwitz, for example, had the lighting crew use real photometric lighting—lights modeled after lights used for film, even going so far as emulating artifacts that might happen on a location shoot.

"We had 580 shots, we had to have rules," says Maschwitz. Grounding the graphic look in rules from live action made the scenes believable.

In that scene with the baking soda snow, for example, as the actors walk along the second story balcony of the seedy motel, Maschwitz asked the compositors to add tiny aperture flares as bare bulbs came into the scene and camera shake. "We added enormous camera moves to some shots," says Maschwitz. "I'd say to the compositors, 'shock me with how much.' They thought I was joking. But Robert [Rodriguez] had guts."

Maschwitz adds, "It was the perfect project."

Related links:

Miramax site
www.sincitythemovie.com

Café FX
www.cafefx.com/cafefx/html/cafefx.html

The Orphanage
www.theorphanage.com